A Bibliometric Network Visualization Of The Indian Journal Of Social Work Using The SCOPUS Database

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Abstract: This present paper aims for the research on bibliometric analysis (Performance analysis) and science mapping or network visualization. The data taken from the SCOPUS database, the researcher examines various performance analysis indicators like the document & source type, year-wise publication, subject area wise, geographical distribution of the publication and most prominent authors. Scientific mapping is performed with the support of VOSviewer and MS-Excel software using the co-authorship, and co-occurrence, indicators. The most common type of network visualization is used to view images of the links that have been analyzed. This study result shows 296 papers and aids in accepting the facts and associations among the chosen indicators.

***Keywords*:** Bibliometric study, IJSW, Scopus, VOSviewer, Network Visualization

I. INTRODUCTION

The Tata Institute of Social Sciences (TISS) publishes the Indian Journal of Social Work (IJSW), a leading journal for social work in India. The journal out in January, April, July, and October every year. This journal has been uninterrupted publication for 80 years, first print edition was starting in 1940. The IJSW publishes excellent research articles on various social work-related topics, covering education, emerging paradigms, social work research, ethics, field practicum, emerging themes, and other related topics' Digital introduction with the January 2017 issue. The printed and digital versions of the institute's flagship publication, now in its 81st year, improve the recording and distribution of the journal's history. The journal has published significant research results from the nation on a range of topics, including rural problems, social welfare and planning, tribal issues, fieldwork supervision, child welfare, medical and psychiatric social work, the family, women, research methodology, human resource management, social policy, sexism, social research methods, self-help groups, drug abuse, outcome budget, HIV counseling, and social work education, among others. The IJSW archive contains articles published between 1940 and 2013, while IJSW Online contains articles published between 2014 and the present. (*The Indian Journal of Social Work*, n.d.)

1.1 Define Bibliometric Analysis

Pritchard, Alan (1969) defined it as "the application of mathematical and statistical methods to books and other media of communication" (Pritchard, 1969)

Hawkins, Donald T. (2001). defined bibliometrics as "the quantitative analysis of the bibliographic features of a body of literature" (Hawkins, n.d.)

Garfield (2006) define with bibliometric studies, we can examine the history and structure of a field, the flow of information into a field, the impact of journals, and the long-term citation impact of publications (Garfield, 2006)

McCain (1996) The bibliometric analysis investigates quantitative and statistical techniques to examine publishing trends in the dissemination of data. It is a set of tools that academics can use to analyze published data. (McCain, 1996)

1.2. Bibliometric Network Visualization

A variety of bibliometric maps that show the publications' structural layout are used to visualize the output of research literature using bibliometric visualization. With the aim of obtaining a sense of the topology of the area, its themes, subjects, and terminology, as well as how they interact to one another, bibliometric mapping is a common technique for identifying specific research areas (Eck, 2011) The VOSviewer highlights several facets of the literature output by utilizing multiple bibliometric map visualizations. The normalized word cooccurrence matrix and a similarity metric that determines the degree of correlations between terms are the foundation of VOS viewer's unified approach to mapping and clustering. (van Eck & Waltman, n.d.). Furthermore, VOSviewer is capable of making networks for institutions, co-authors, country, keywords and citations.

The following research questions from the Indian Journal of Social Work are the main focus of this study:

Which authors are most productive in terms of articles published?

Which years have the most papers been published?

Most prominent countries are publishing the maximum number of research papers?

Which nations have collaborated on the most publications with other nations?

Which keywords co-occur with the most commonly used keywords?

Which authors are co-authorship the most of organization and country wise?

2. METHODOLOGY

This present study used a qualitative investigation technique by observing the visualization of the mapping of research terms contained in the keyword's bibliometric study and IJSW. Collect data from journal indexed on Scopus between 2014 and 2023. In total of 296 articles were collected based on the search results. The MS-Excel and VOSviewer program is then used for performance analysis. The VOSviewer program is actually useful for scholars in defining which areas should be investigated extra to create study diversity.
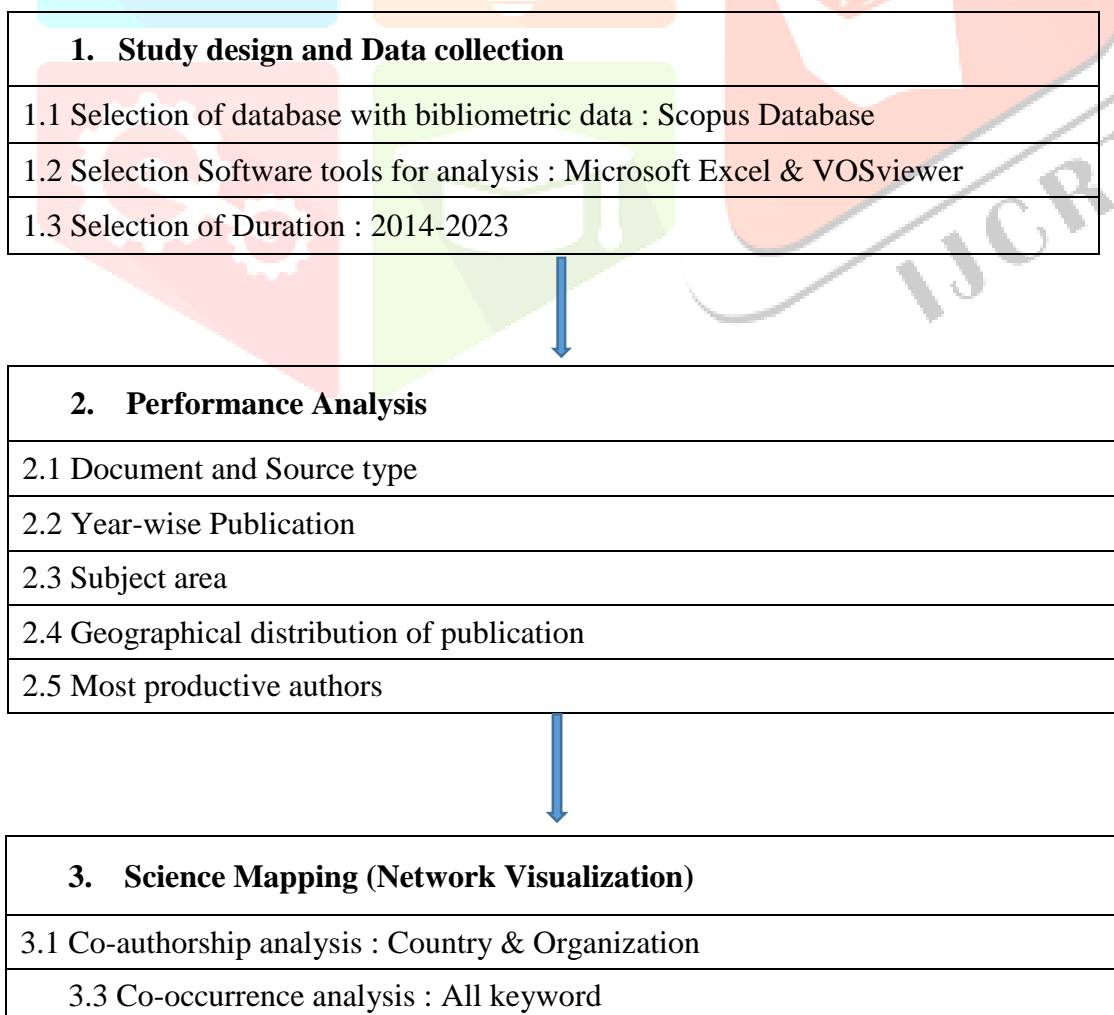
2.1 VOSviewer

The VOSviewer software is used to create and visualize bibliometric networks. This network could be created by citations, co-citations, co-authorship, bibliographic coupling, and they could, for instance, researchers, contain journals, or single papers. Furthermore, VOSviewer gives text analysis tools that is useful for creating and displaying co-occurrence networks of significant terms retrieved from a collection of scientific literature. Many databases can be used to citation the data required to do a bibliographic study. (Falagas et al., 2008) have both published analyses of the benefits and drawbacks of the various databases. We chose the Scopus (Elsevier Ltd.) database based on this assessment and the simplicity of loading the data into the analysis and mapping programme VOSviewer. Many peer-reviewed journals, including IJSW, are well covered by Scopus. Visit www.vosviewer.com/ to get the package and learn more about its creation, features, and application.

2.1 Strategy for searching and data analysis

Using the search term "Indian Journal of Social Work" in the Publication name box for the years 2014 through 2023 the search was conducted in January, 29 and 30, 2024, in the Scopus database. By entering the title of the journal as the search phrase in the "source" a common search was conducted to locate all papers published during the 2014-2023 of IJSW's publication. After that, the retrieved articles were checked for accuracy to make sure that no articles from other journals had been incorrectly coded. There were no faults. In order to make sure no articles were missed, we carefully compared the recovered articles to the Contents pages of IJSW issues (Vošner et al., 2016)

The Performance Analysis and Science Mapping indicators are summarized as follows:

1. Study design and Data collection
1.1 Selection of database with bibliometric data : Scopus Database
1.2 Selection Software tools for analysis : Microsoft Excel & VOSviewer
1.3 Selection of Duration : 2014-2023

2. Performance Analysis
2.1 Document and Source type
2.2 Year-wise Publication
2.3 Subject area
2.4 Geographical distribution of publication
2.5 Most productive authors

3. Science Mapping (Network Visualization)
3.1 Co-authorship analysis : Country & Organization
3.3 Co-occurrence analysis : All keyword

(Hassan et al., 2021)

RESULTS

Performance Analysis:

Document and Source Type

Among the 296 records in the sample, article 220 (74.30%) in first place comprises the most numerous types of documents. Remarkably, this is followed by editorial articles 40 (13.50%), review articles 33 (11.10%), conference paper 2 (0.70%), and Notes 1 (0.30%). Table 1 and Figure 1 present a detailed description of the different kinds of documents.

Table 1: Type of Documents

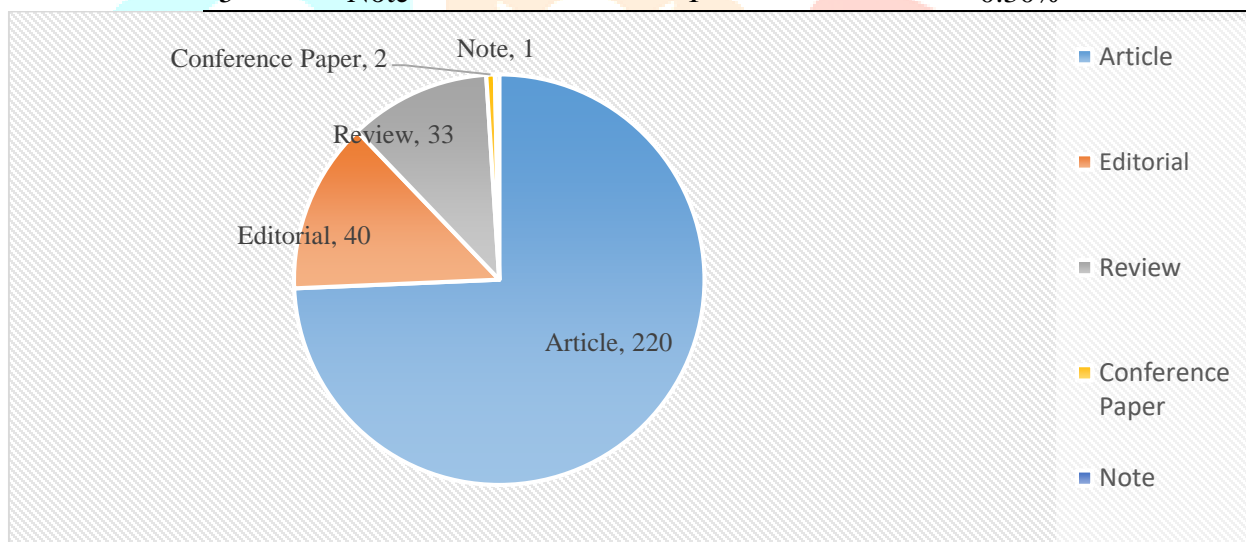| #	Document Type	Documents	Percentage
1	Articles	220	74.30%
2	Editorial	40	13.50%
3	Review	33	11.10%
4	Conference Paper	2	0.70%
5	Note	1	0.30%

Figure 1: Document Type

Year of Publications

Table 2 displays the variations in the present study of IJSW publications between 2014 to 2023. The journal published 36 articles in both 2014 and 2016, totaling 12.16% of all publications to date, making those years stand out because they had the most releases. However, in 2019 and 2020, with 34 (11.49%), the number of papers published dropped to a lower level than the 2015 total, to just 9 (3.04%), the smallest number the publication has ever published.

Table 2: Year of Publication

| Year	Publications	Cumulative Publication.	Percentage	Cumulative %	Citation	Cumulative Citation	Percentage	Cumulative %
2014	36	36	12.16	12.16	39	39	25.32	25.32
2015	9	45	3.04	15.20	4	43	2.6	27.92
2016	30	75	10.14	13.16	15	58	9.74	37.66
2017	36	111	12.16	25.32	16	74	10.39	48.05
2018	31	142	10.47	14.16	38	112	24.68	72.73
2019	34	176	11.49	25.65	26	138	16.88	89.61
2020	34	210	11.49	15.16	5	143	3.25	92.86
2021	32	242	10.81	25.97	6	149	3.96	96.82
2022	30	272	10.14	16.16	3	152	1.95	98.77
2023	24	296	8.11	24.27	2	154	1.3	100.07
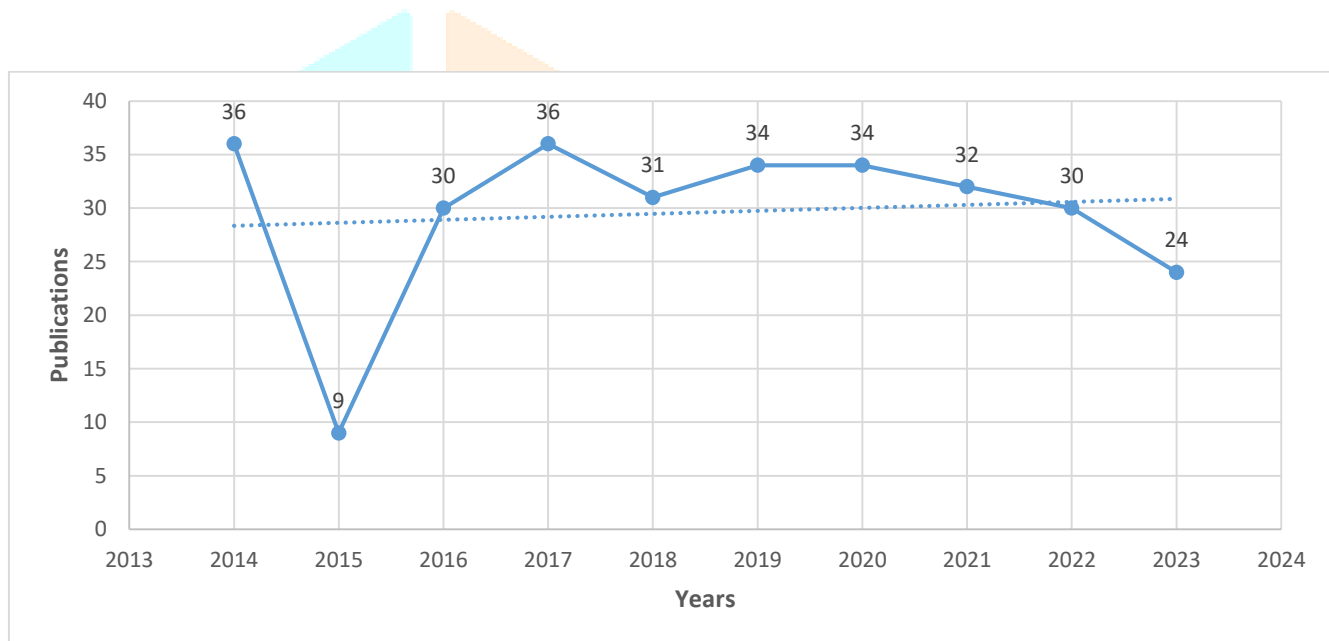
Figure 2: Year of Publication

Publications of Geographical Distribution: The Most Prominent Contries

Table 3 and Figure 2 show the percentage contributions of the leading nations in the journal of IJSW, the criteria set were a minimum of two articles published, and a total of 34 countries contributed. India is in first place with 217 (73.31%), the United States with 15 (05.07%), and South Africa with 10 (3.38%). The two publishing nations in the journal secured second and third positions. Zimbabwe 5 (1.69%) ranks fourth on the table, Hungary 4 (1.35%), and the and the U.K. 3 (1.01%). Australia, Bangladesh, Ireland, Israel, Italy, Malaysia, the Netherlands, and Sweden are all at the below of the table, contributing only 2 (0.68%) to the total publications.

Table 3: Top Countries Contributing to the Publications

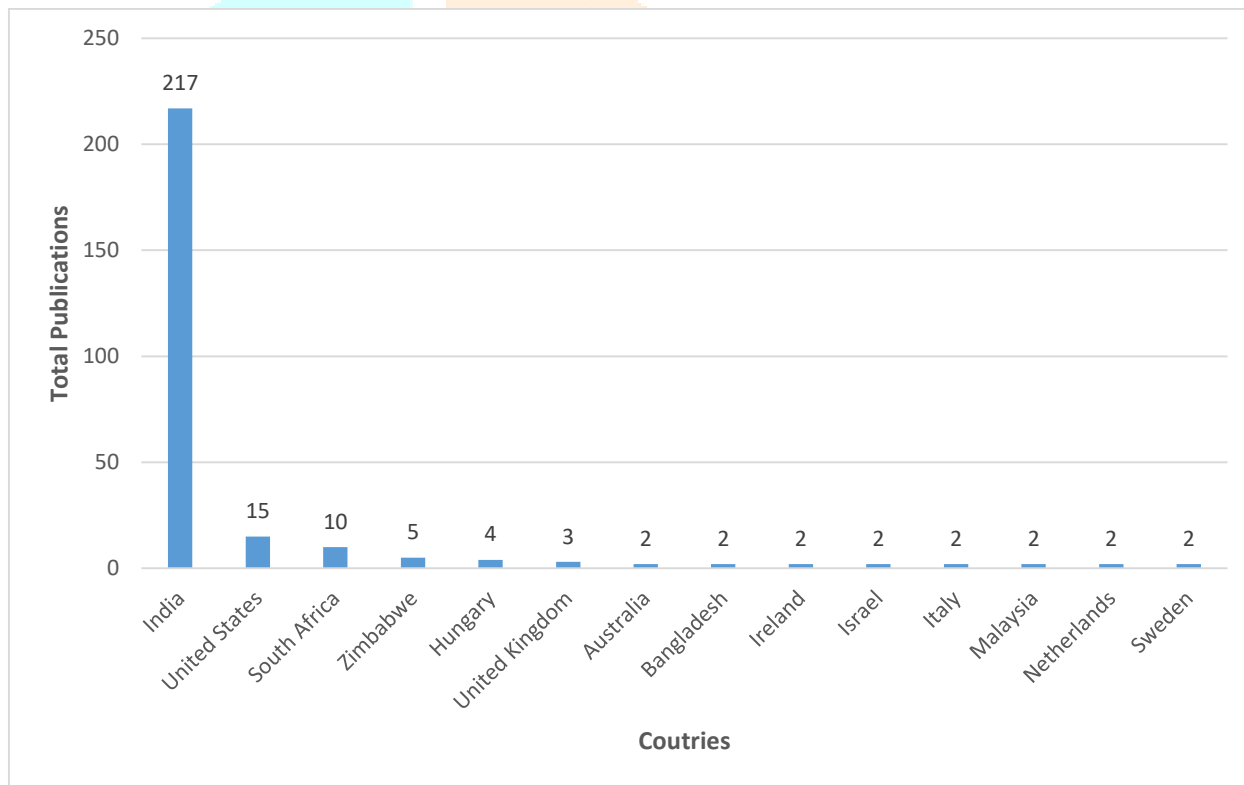| #	Country	Documents	% of 296
1	India	217	0.7331
2	United States	15	0.0507
3	South Africa	10	0.0338
4	Zimbabwe	5	0.0169
5	Hungary	4	0.0135
6	United Kingdom	3	0.0101
7	Australia	2	0.0068
8	Bangladesh	2	0.0068
9	Ireland	2	0.0068
10	Israel	2	0.0068
11	Italy	2	0.0068
12	Malaysia	2	0.0068
13	Netherlands	2	0.0068
14	Sweden	2	0.0068

Figure 3: Leading Countries Contributing to the Publications

Authorship

Table 4 shows the number of authors per article. The present study totals 159 authors, and 39 authors were chosen who wrote at least 2 articles, and the maximum number of articles were written by Jaswal, S., with 23 (07.77%) in the first position, followed by Narayan, L., with 7 (2.36%) in the second position, Sahu, G., with 6 (2.03%) in the third position, Pandit, M., with 5 (1.69%) in the fourth position, followed by Dessai, Datta, Jha, Juvva, Lakshmana, Meenai, Nagchoudhuri, and Ranade, all authors Witten, with 3 (1.01%) articles, and the remaining 27 authors wrote 2 (0.68%) articles.

Table 4: Top Most productive authors

| #	Authors Name	Documents	% of 296
1	Jaswal, S.	23	0.0777
2	Narayan, L.	7	0.0236
3	Sahu, G.	6	0.0203
4	Pandit, M.	5	0.0169
5	Dassi, A.	3	0.0101
6	Datta, V.	3	0.0101
7	Jha, M.K.	3	0.0101
8	Juvva, S.	3	0.0101
9	Lakshmana, G.	3	0.0101
10	Meenai, Z.	3	0.0101
11	Nagchoudhuri, M.	3	0.0101
12	Ranade, K.	3	0.0101
13	Akhup, A.	2	0.0068
14	Billimoria, J.	2	0.0068
15	Channaveer, R.M.	2	0.0068
16	Chikadzi, V.	2	0.0068
17	Dunajeva, J.	2	0.0068
18	Freund, A.	2	0.0068
19	Jose, J.P.	2	0.0068
20	Karunanithi, G.	2	0.0068
21	Kaushik, A.	2	0.0068
22	Konantambigi, R.M.	2	0.0068
23	Kumar, S.	2	0.0068
24	Maitra, S.	2	0.0068
25	Mathrani, V.	2	0.0068
26	Menezes, S.	2	0.0068
27	Mitra, S.	2	0.0068
28	Nadkarni, V.V.	2	0.0068
29	Nair, R.	2	0.0068
30	Nasreen, A.	2	0.0068
31	Nayar, M.	2	0.0068
32	Ncube, M.	2	0.0068
33	Raghavan, V.	2	0.0068
34	Ryder, A.	2	0.0068
35	Sakhrani, M.	2	0.0068
36	Sharma, S.	2	0.0068
37	Soletti, A.B.	2	0.0068
38	Swamy, G.A.	2	0.0068
39	Trehan, N.	2	0.0068
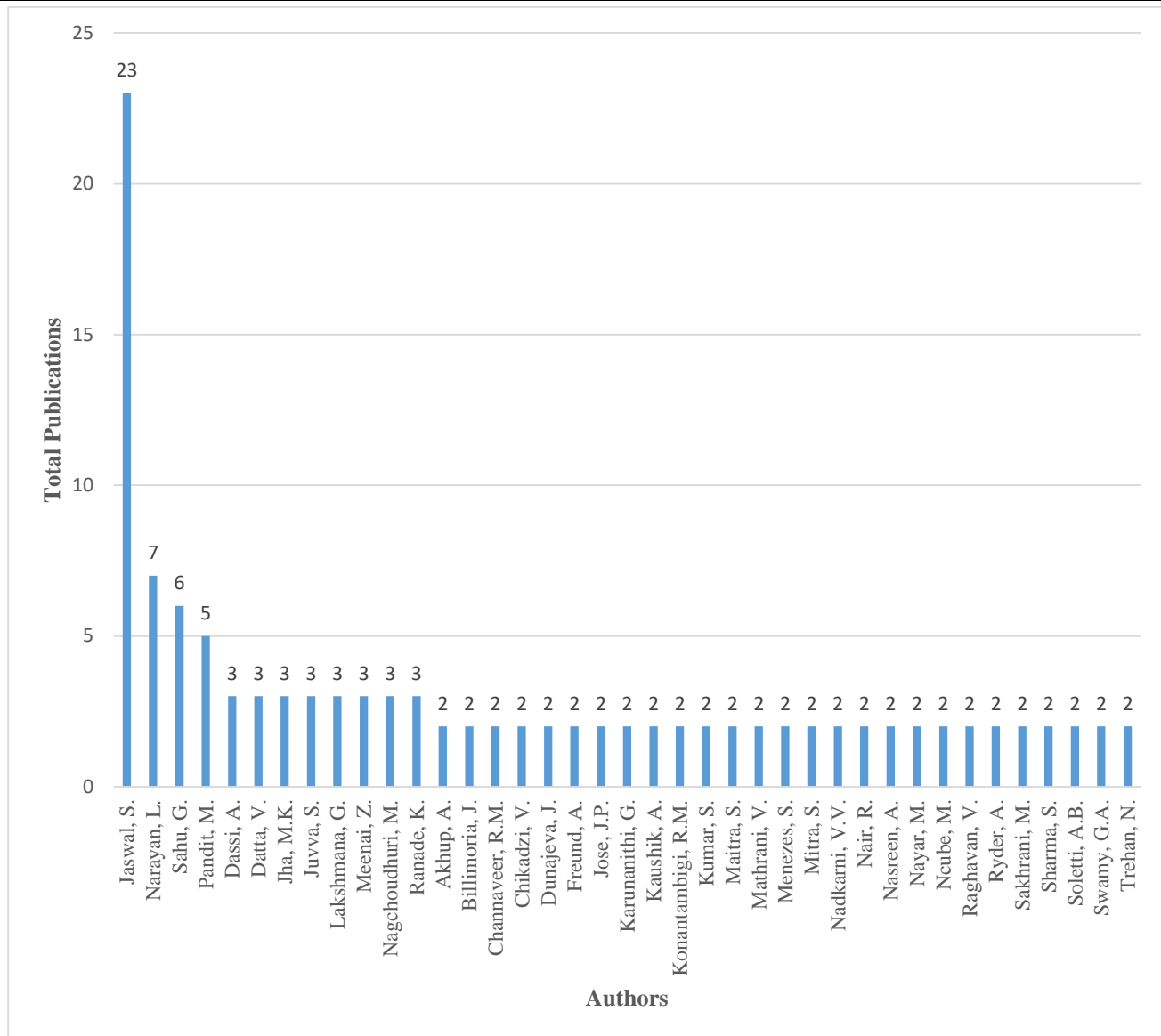
Figure 4: Top Most productive authors

Funding Agencies

Table 5 and Figure 4 show the quantity of a total of 19 funding agencies, and we selected all 19-funding agency for analysis. The top agencies are the World Bank Grope with 3 publications in the first place, the Second European Commission with 2 publications, and the other 17 agencies that published at least one article.

Table 5: Top Funding Agencies

#	Funding Agencies	Publications
1	World Bank Group	3
2	European Commission	2
3	Bill and Melinda Gates Foundation	1
4	Centre for Addiction and Mental Health	1
5	Council on Foreign Relations	1
6	Department of Science and Technology, Ministry of Science and Technology, India	1
7	FHI 360	1

| 8 | Ford Foundation | 1 |
9	Indian Council of Social Science Research	1
10	Japan International Cooperation Agency	1
11	Manipal University	1
12	Ministry of Health and Family Welfare	1
13	National Foundation for Science and Technology Development	1
14	Population Council	1
15	Stanford University	1
16	Tata Institute of Social Sciences	1
17	UNICEF	1
18	United States Agency for International Development	1
19	Warren Alpert Foundation	1
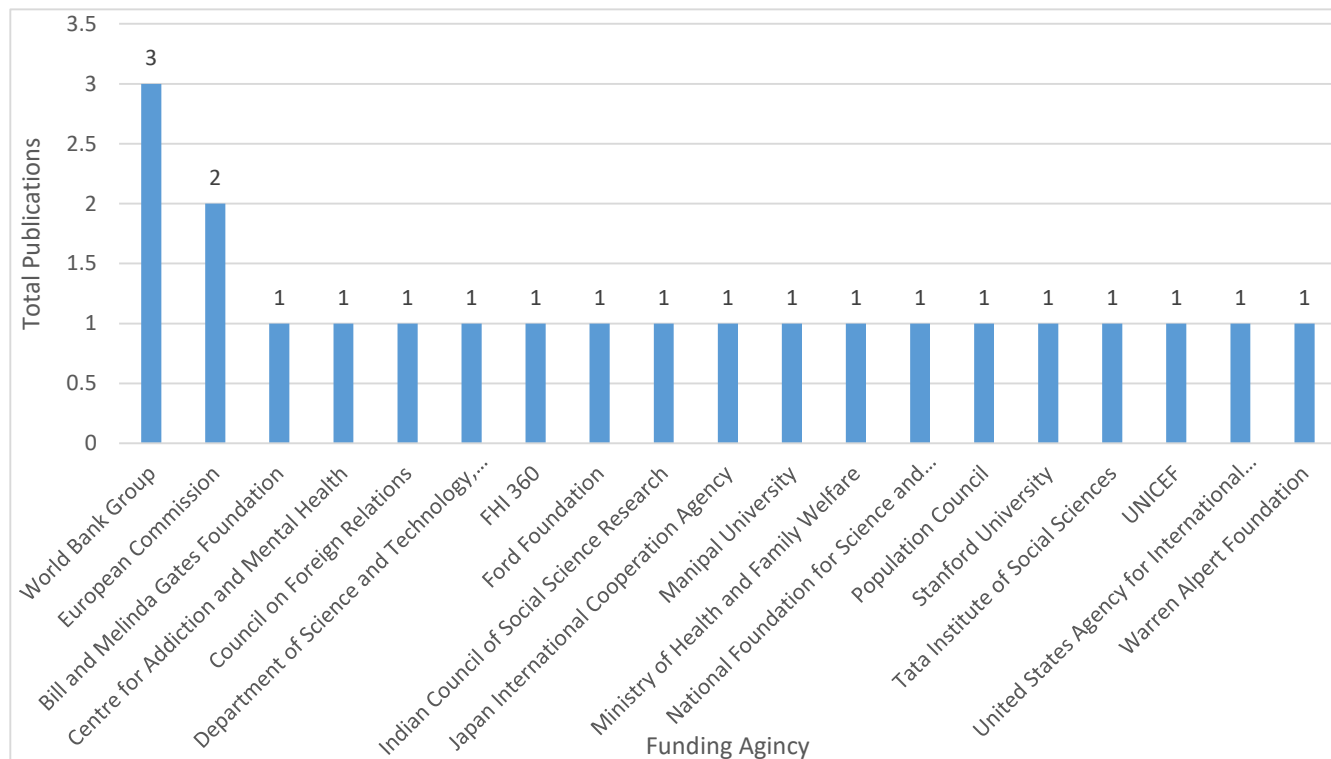
Figure 5: Top Funding Agencies

SCIENCE MAPPING

Co-authorship Analysis: Country

An article's author has independently contributed to theThe country association presents information on the nation where the authors were working at a particular study institute at the time their works were published. An article's author has independently contributed to the document, and so the country and organization with which the authors are associated could be considered significant sponsors for the assessment. Here are 23 countries contributing to the 296 papers in this study, and at least 2 articles have been published. Table 6 lists the top 10 countries. India has the largest contribution, with 217 articles and 94 citations. The United States came in second with 15 articles and 21 citations, followed by South Africa in third place with 10 articles and 18 citations. Then other countries followed, such as Zimbabwe, Hungary, the United Kingdom, Australia, Bangladesh, Ireland, Israel, Italy, Malaysia, the Netherlands,

Sudan, and Sweden, from fourth to fifteenth place. Country co-authorship analyses indicate the degree of collaboration among countries moreover, the prominent countries in the IJSW journal. Using the VOSviewer software for co-author network analysis. (Figure 6). In Figure 3, a circle signifies a country; the size of every circle represents the papers in each country, which means the action of the country or region. A link is recognized when two nations have a collective relationship, and India is linked to almost all countries with a total link strength of 18. The width of every line shows the tightness of association and the number of collaborations between countries. We set the threshold at 1, and 23 countries are meeting the requirement. 23 circles are divided into five groups by the VOSviewer software indicated by the colors green, blue, red, yellow, etc.

Table 6: Top 10 Most Productive Country

| #	Country	Documents	Citations	Average Citation	Total link Strength
1	India	217	94	0.4332	18
2	United States	15	21	1.4000	7
3	South Africa	10	18	1.8000	4
4	Zimbabwe	5	2	0.4000	1
5	Hungary	4	5	1.2500	1
6	United Kingdom	3	3	1.0000	4
7	Australia	2	10	5.0000	0
8	Bangladesh	2	1	0.5000	1
9	Ireland	2	10	5.0000	3
10	Israel	2	0	0.0000	0
11	Italy	2	5	2.5000	4
12	Malaysia	2	1	0.5000	0
13	Netherlands	2	0	0.0000	2
14	Sweden	2	1	0.5000	1
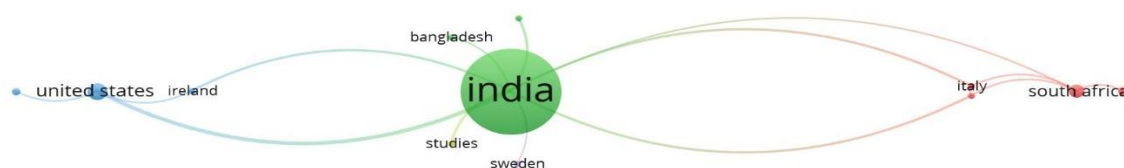
Figure 6: Network Visualization of the Co-authorship Analysis
Unit of analysis = Country
Least number of articles of an author = 1,
Least number citations of an author = 1

Co-authorship Analysis: Organizations

The institute to which at least one author of the published articles had a relationship identified the contribution from different institutes. Displays the top 14 most influential institutions that submitted at least three papers. The relationships between institutions and institutions in this field are shown in the organization co-authorship analysis. Of the 31 organizations, 14 meet the threshold. Every circle depicts a single organization, and the size of a circle shows how many articles it has. When two organizations work together, a line is formed; the breadth of each line shows the number of collaborations and degree of collaboration

Table 7 - Top Organizations and Institutes

#	Organization	Documents	Citations	Total link Strength
1	School of Social Work, Tata Institute of Social Sciences, Mumbai, India	9	2	1
2	Tata Institute of Social Sciences, Mumbai, India	9	2	0
3	Centre for Lifelong Learning, Tata Institute of Social Sciences, Mumbai, India	6	3	3
4	Department of Social Work, Jamia Millia Islamia, New Delhi, India	5	1	0
5	Centre for Science, Technology and Society, School of Habitat Studies, Tata Institute of Social Sciences, Mumbai, India	4	1	0
6	Department of Social Work, University of Delhi, Delhi, India	4	4	0
7	Development Consultant, Mumbai, India	4	1	4
8	School of Management and Labour Studies, Tata Institute of Social Sciences, Mumbai, India	4	2	0
9	Bangalore, India	3	0	0
10	Centre for Criminology and Justice, School of Social Work, Tata Institute of Social Sciences, Mumbai, India	3	2	0
11	Centre for Health and Mental Health, School of Social Work, Tata Institute of Social Sciences, Mumbai, India	3	1	0
12	Centre for Lifelong Learning, TISS, Mumbai, India	3	1	3
13	Department of Social Work, Central University of Karnataka, India	3	0	0
14	Department of Social Work, Jamia Milia Islamia, New Delhi, India	3	2	0

Figure 7: Network Visualization of the Co-authorship Analysis
Unit of analysis = Organization
Least number of documents of an author = 1
Least number of citations of an author = 1

Co-Occurrence Analysis: Keywords

Whenever defining a subject that is related to the study's topic, authors typically include a list of keywords in their study. It's similarly general for reviewers and editors to develop such information with other keywords found in databases according to the subject text of the publication. Research areas can be effectively defined through hence, burst keywords indicate research boundaries and predict new trends. We used all keywords, in the evaluation (table 8). list the top 10 co-occurrence author keywords, index keywords, and all keywords in the journal of IJSW analyzed by vosviewer software. The total number of keywords is 379 and chosen top 25 keywords at least two occurrences. The bibliomatric analysis network map of every keyword examined using the Vosviewer program is displayed in figure 8. network maps were generated and analysis carried out utilizing default parameters. The color of the circle indicates the group in which the keyword is included according to the number of co-occurrences, and the size of the circle indicates the number of articles that are used repeatedly. There are eight main groups that represent eight various areas of social work. Various colours correspond to different clusters of keywords, such as red for humans, blue for education, green for risk factors, and orange for health services, among others.

Table 8 — Top Co-Occurrence All Keywords

| #	Id	Keyword	Occurrences	Total Link Strength
1	52	Covid-19	8	31
2	32	Children	4	12
3	324	Social Work	4	17
4	7	Adolescents	2	6
5	22	Case Study	2	6
6	45	Conflict	2	9
7	97	Ethnicity	2	10
8	122	Forest Rights Act	2	7
9	149	India	2	8
10	201	Lockdown	2	8
11	204	Masculinity	2	7
12	206	Mental Health	2	8
13	210	Migration	2	7
14	219	NFSA	2	6
15	222	Northeast India	2	10
16	235	Parenting	2	6
17	250	Preparedness	2	6
18	284	Rehabilitation	2	8
19	316	Social Identity	2	5
20	326	Social Work Education	2	5
21	328	Social Work Response	2	6
22	342	Supervision	2	6
23	358	Trauma	2	10
24	363	Unpaid Work	2	12
25	367	Victimisation	2	7
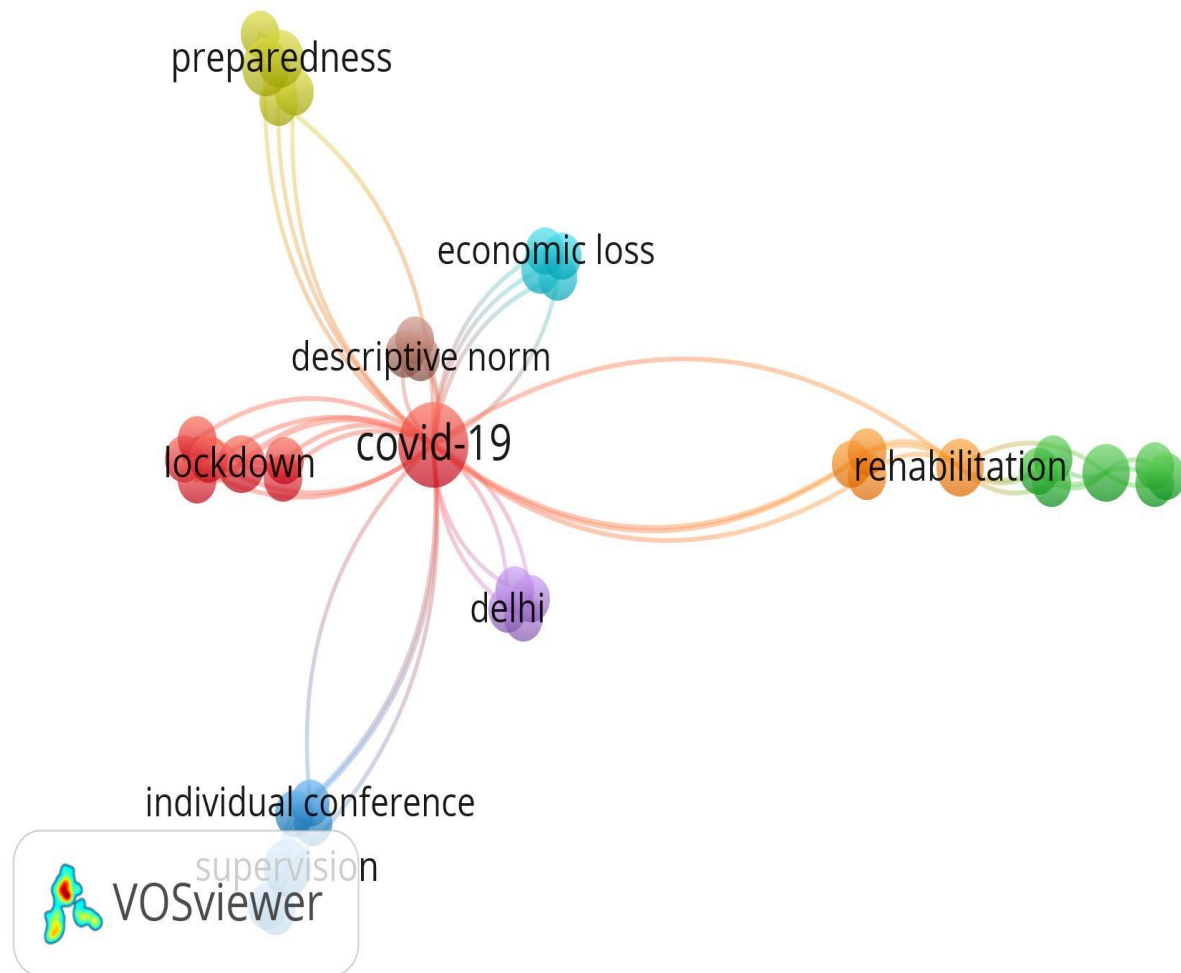
Figure 8: Network Visualization of the Co-occurrence Analysis
Unit of analysis = All keywords

Conclusion

The findings of the current study indicate that there are several uses for bibliometric techniques, including evaluating the potential of topics, evaluating scientific results, choosing journals for libraries, and defining various scientific indicators. A great quantity of data on bibliometrics and related subjects has been written as an outcome of the wide acceptance of bibliometric methods in related fields. The IJSW journal has published 296 articles from the 2014–2023 period of study. In order to be a journal in the areas of social work and social science in their true sense, the journal should incorporate contributions from across the globe and raise issues related to social work research. Among the 296 records in the sample, articles 220 (74.30%). India has the largest contribution, with 217 articles (73.31%) and 94 citations. The highest papers were written by Jaswal, S., with 23 (07.77%) in the first position. The top agencies are the World Bank, with three publications in the first place. The total number of keywords is 379, and the top 25 keywords have at least two occurrences. IJSW is the highly preferred journal in the social work field.

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